Spanish Constructions of directed motion - a quantitative study

Typological variation and framing strategy

Pedersen, Johan

Published in:
Corpus-based approaches to Construction Grammar

Publication date:
2016

Document version
Peer reviewed version

Citation for published version (APA):
Pedersen, J. (2016). Spanish Constructions of directed motion - a quantitative study: Typological variation and framing strategy. In S. Gries, & J. Yoon (Eds.), *Corpus-based approaches to Construction Grammar* (pp. 95-144). John Benjamins Publishing Company. Constructional Approaches to Language No. 19

Spanish constructions of directed motion – a quantitative study

Typological variation and framing strategy[1]

Johan Pedersen

University of Copenhagen

Abstract

In typological studies of expressions of motion events, there is a need for a quantitative methodology that assesses and qualifies inter- and intra-linguistic variation. The article reports from a large corpus study of the use of Spanish motion verbs in constructions of telic motion. Verb associations with the constructional V-slot were measured by using collostructional methodology (Stefanowitsch & Gries, 2003). Six categories of construction-specific variation were identified. The corpus data and broad evidence from other semantic domains suggest that the encoding of Spanish argument structure is verb-driven and that verb constraints versus schematicity is a typological parameter. The article concludes that Spanish is a *verb-framing* language rather than a verb-framed language (cf. Talmy, 2000), which explains the substantial variation observed.

[1] I am grateful to several anonymous reviewers for valuable comments and suggestions on an earlier version of this article.

1. Introduction

Over the past several decades, a constant flow of interesting data and new insights has emerged from research based on the influential Talmian typology of motion events. Nevertheless, important typological variation remains unaccounted for – and unexplained – in recent elaborations of the typology. This is reflected in the fact that substantial amounts of evidence that do not fit the proposed models of lexicalization can be found in almost all languages. For instance, the Romance languages are generally regarded as verb-framed languages (i.e., in expressions of directional motion, they code path of motion in the verb and manner of motion optionally outside the verb), while Germanic languages are classified as satellite-framed (i.e., they code path of motion in a satellite and manner of motion in the verb). Nevertheless, in Spanish, some manner-of-motion verbs actually occur in expressions of directional motion, even when the motion event is telic. Italian is a Romance language and, just like Spanish, it is characterized as verb-framed. However, Italian is also characterized by high-frequency verb-particle constructions; and, if we focus on this aspect, it appears more like a Germanic language (e.g., Masini, 2005, 2008; Simone, 1996).

In these typological studies, there is a need for a quantitative methodology that assesses and qualifies *inter- and intra-linguistic variation*. It is important to be able to test the validity of hypotheses on typological differences and take into account the observed patterns of variation. In short, it is important to anchor the typological assessment in both inter- and intra-linguistic variation. Such an approach allows theoretical interpretations to be grounded in real usage.

In this study, I suggest a usage-based methodology that enables a quantitatively-based assessment of the variation. The purpose is to qualify the variation and to be able to test and elaborate typological theories and hypotheses. The basic idea is that, instead of taking a universal componen-

tial approach to the study of motion events (cf. Talmy's work and followers of this line of research), the collostructional methodology that quantitatively associates lexical types with a specific syntactic environment (e.g., Stefanowitsch & Gries, 2003, 2005) allows for determining specific categories of variation. In previous research, the collostructional methodology has typically been used to determine the association of top-ranked verbs with the objective of determining prototypical constructional meaning (Gries, 2012; Stefanowitsch & Gries, 2003). In this study, however, the focus is equally on low-ranked verbs with very little or no association with the constructional environment. Specific Spanish expressions of directional motion and their typological features will be analyzed on the basis of such assessments.

Focus will be on the verb and the encoding of path and manner of motion. The reason is that the encoding of path and manner has been at the center of the typological discussion for the last 25 years in the research tradition that originates in Talmy's later work: In satellite-framed languages, the verb encodes the manner; in verb-framed languages, the verb encodes the path (e.g., Talmy, 1991, 2000). I have specifically chosen telic motion as the target construction in this study for two reasons: 1) this construction has been particularly central in discussions of the typological status of Spanish in expressions of motion events; 2) this choice is a reasonable way to delimit the data sample for this study. Corpus searches for, e.g., the more general constructional environment of directional motion would return enormous amounts of data that must be gone through, assessed and counted manually.

In English, telic motion events may be expressed by a diversity of goal-marking satellites – for instance, prepositional phrases. This can be exemplified by the English goal-marker *to*:

(1) Peter ran to the bathroom

In Spanish, the expression of goal-oriented motion is frequently elaborated by a goal-marking prepositional phrase. The preposition *a* is the best indicator of goal-oriented directional motion:[2]

(2) Pedro se fue **a**-l baño corr-iendo
Pedro REFL go.SPS.3SG to-DET bathroom run-GERUND
'Peter ran to the bathroom'

The next section (Section 2) provides some background for this study. In Sections 3 and 4, respectively, I present the theoretical framework and the applied methodology for a large quantitative corpus study of the typology of Spanish expressions of directional motion. In Section 5, I present and analyze the results. Section 6 is a theoretical discussion of the results. Finally, a conclusion will be drawn, and some perspectives for future research will be outlined. The appendix provides a complete presentation of the distributional analysis of Spanish motion verbs in a telic construction.

2. Background

In Talmy's pioneering work on language typology, languages are grouped together according to how they lexicalize different conceptual aspects of the motion event (e.g., Talmy, 1985, 1987, 1991, 2000). The following is the classic example used by Talmy in his early work:

(3) a. The bottle floated into the cave (Talmy, 1985)

[2] For more details on this matter, see the lengthy discussion in Pedersen (2014).

b. la botella entr-ó en la cueva (flot-ando) Spanish

the bottle enter-PST.3SG in the cave float-GERUND

In his later work, the principal claim is a two-way general typology in which the determination of the language type depends on how the *main event* and the *co-event* are encoded (Talmy, 1991, 2000). Languages are now classified as *verb-framed languages* (V-framed) versus *satellite-framed languages* (S-framed), referring to whether the basic meaning structure (*the framing event* = main event) in expressions of complex events is encoded in the verb or outside the verb, respectively. In particular, Talmy maintains that, in expressions of directed motion, some languages, such as English, tend to lexicalize the framing event, i.e., the path of motion, in a satellite; whereas the co-event, i.e., the manner of motion, is lexicalized by the verb. Other languages, such as Spanish, tend to lexicalize the framing event by the verb and may express the co-event by adding an adverbial phrase:

(3) a. The bottle floated into the cave

CE ME

b. La botella entr-ó en la cueva (flotando)

the bottle enter- PST.3SG in the cave (floating)

ME CE

Since Talmy's early work on typology, expressions of directed motion have been the subject of ongoing interest, and Talmy's work has been, and still is, extremely influential in cognitive semantics as well as in other theoretical frameworks (e.g., Jackendoff, 1990, 1997; Levin and Rappaport, 1995; Mateu & Rigau, 2000, 2002). Nevertheless, important typological variation remains unaccounted

for, and numerous authors have tried to explain the variation and elaborate the typological patterns from diverse perspectives.

Most importantly, an extensive literature on the subject indicates that some languages do not seem to fit into his binary typology. Recently, the typology was extended to include a third category, i.e., the so-called *equipollently-framed languages*, referring to languages in which path and manner are expressed by equivalent grammatical forms (e.g., Slobin, 2004; Slobin & Hoiting, 1994; Zlatev & Yangklang, 2004). This extension primarily includes languages with serial verb constructions such as Thai, in which both manner and path are simultaneously encoded as main verbs (Beavers *et al.*, 2010).

Moreover, almost every language, to some degree, has to be judged as a mixed type (see, e.g., Aske, 1989; Beavers *et al.*, 2010; Berman & Slobin, 1994; Croft *et al*., 2010; Gennari *et al.*, 2002; Ibarretxe-Antuñano, 2004a, 2004b, 2009; Martínez Vázquez, 2001; Pedersen, 2009a; Slobin, 1996a, 1996b, 1997, 1998, 2000, 2004, 2006, 2008; Slobin & Hoiting, 1994; Zlatev & Yangklang, 2004, among many others). For instance, Jon Aske's classic article (Aske, 1989) on path predicates in English and Spanish provides an important contribution to an elaboration of Talmy's typology, though it is still adapting the same fundamental typological machinery. His paper focuses on the syntactic-semantic circumstances in Spanish under which it is grammatically correct to express the path of motion outside the main verb. He suggests that the inability of Spanish to express the path of motion in a satellite and the manner in the verb is limited to telic motion events. The reason for this, according to Aske, is that secondary predicates – i.e., complex predicates – are not allowed in Spanish. However, the Spanish example of telic motion in (4) is a counterexample since the manner of motion is encoded by the verb, which is a Germanic feature according to the typology (see the translation):

(4) Vol-aron a Mar de Plata (Spanish – Martínez Vázquez, 2001, pp. 51–52)
fly- PST.3SG to Mar de Plata
'They flew to Mar de Plata'

In fact, it has been shown recently that some manner of motion verbs do occur regularly in Spanish expressions of telic motion (Pedersen, 2014). This usage is also attested for other typologically similar languages, such as Italian, French and Japanese (see Beavers *et al.*, 2010 and references cited there for examples from other languages). Beavers *et al.* (2010) point out that some languages even allow both canonical S- and V-framed constructions. For example, English and Hebrew – the latter is sometimes classified as V-framed; see, e.g., Slobin (2004) – facilitate both canonical encoding types, as shown in the following Hebrew examples (5) and their English translations:

(5) a. ha-kelev zaxal la-meluna. (Hebrew – Beavers *et al*., 2010, p. 361)
the-dog crawled to.the-doghouse
'The dog crawled into the doghouse.'

(5) b. ha-kelev nixnas la-meluna bi-zxila.
the-dog entered to.the-doghouse in-crawl$_N$
'The dog entered the doghouse crawling.'

Recently, Ibarretxe-Antuñano, building on Slobin's work, has suggested clines of 'path/manner salience' that classify languages along continua between high-path/manner-salient languages and low-path/manner-salient languages (e.g., Ibarretxe-Antuñano, 2004a, 2004b, 2009). In this typological framework, the typological status of a language depends on its degree of path/ground and man-

ner elaboration. Now the typological question is not first and foremost *how* (in which constituent type) languages encode path and manner but *how much* they elaborate these semantic components. Thus, Ibarretxe-Antuñano intends to account for both inter-linguistic and intra-linguistic variation in terms of typological clines of path/manner salience that cross-cut the classical binary classification as well as the more recent tertiary division between verb-framed, satellite-framed, and equipollently-framed languages. An implication of this approach is that, compared to English, for instance, Spanish provides less detailed information about both the manner and the path component. This approach is arguably a more fine-grained elaboration of Talmy's typology than earlier proposals. Nevertheless, in my view, this direction of research, on the one hand, follows too closely the Talmian tradition based on the mapping of universal semantic components (e.g., path and manner) onto clausal constituents. Below, I discuss some problems of this kind of form-meaning pairing. On the other hand, paradoxically, it tends to dissociate too much from the fundamental, and very important, insights in Talmy's original framework, namely, that different language types facilitate different basic encoding options in expressions of directional motion, as well as in other domains of argument structure.[3] Instead, the explanatory focus in Ibarretxe-Antuñano's work is on the possible factors that may explain differences of granularity. Most importantly, as in other approaches – see, e.g., Beavers *et al*. (2010) – she focuses on the linguistic resources (lexicon, morphology, and morpho-syntax) that each language provides for encoding different aspects of the motion event – e.g., manner and path of motion. This issue is particularly interesting when considered in a diachronic perspective since a crucial question is why languages tend to develop certain types of resources. In a recent study, for instance, Fanego (2012) addresses the question why, and under what conditions,

[3] The availability of the compounding parameter in Parameter Theory (e.g., Snyder, 2001) represents a theoretically completely different but also highly influential typological framework. It offers similar insights into the available encoding options in different language types that may tend to be blurred when too much focus is put on the granularity of expression at the expense of principles of encoding (±compounding).

manner salience emerges in the history of English motion verbs. Her study confirms Slobin's hypothesis that the increase in linguistic manner-of-motion diversity correlates with, or is a consequence of, satellite-framed typology (Slobin, 2004, 2006).

Summing up, the question of how to deal with the significant amounts of *unpredicted inter- and intra-linguistic variation* in expressions of directional motion is largely unsolved in the Talmian tradition. A symptom of this situation is the serious lack of quantitative empirical underpinning of the current typologies.

3. Theoretical framework

The analyses of this study were conducted within the general framework of a family of usage-based construction grammars (Boas, 2003; Bybee, 1985; Croft, 2001; Goldberg, 2006; Langacker, 1987, 1988; Tomasello, 2003; among others). From a theoretical perspective, constructions are basically understood as non-derived form-meaning pairings of different specificity, stored as the basic elements of users' grammar (e.g., Goldberg, 1995, 2006). Derived form-meaning pairings, however, may also be stored independently as grammatical constructions if they are sufficiently frequent (e.g., Croft, 2001, p. 28; Goldberg, 2006, p. 224; Goldberg & Jackendoff, 2004, p. 533). An important feature of constructions in a usage-based grammar is that the emergence of different types of constructions reflects frequency effects (see, e.g., Barlow & Kemmer, 2000; Bybee, 2006, 2007). Lexemes, such as the Spanish [casa] / 'house', have a special status as lexical constructions due to their special role as carriers of substantial meaning in every language.[4] More abstract constructions have diagrammatic features in the sense that they have their own schematic meaning. This is most prom-

[4] For the same reason, I believe, we should keep the denomination *lexeme* for this particular construction type.

inently exemplified by *argument structure constructions*, e.g., the English constructions of directional motion: [SUBJ, V, OBL] / 'X moves Y' (Goldberg, 1995). When argument structure is basically organized as a diagram (in the sense of Goldberg's argument structure constructions) with slots filled out by lexical items, I will characterize it as *construction-driven*. If it is basically organized at the lexical level as verb-framing by means of a conceptual valence structure with a lexical (verbal) profile (Langacker, 1987), I will correspondingly characterize it as *verb-driven* (Pedersen, 2013, 2014; cf., e.g., Boas, 2003, 2010b).

Notice that the notions *diagrammaticity*/*schematicity*) and *verb-framing* in this context refers to an organizational device, a procedural option. On the one hand, diagrammaticity/schematicity does not presuppose the identification of a specific, theoretically well-defined schematic construction.[5] We may argue that a diagrammatic feature could be involved in the following expression: *Peter danced to the bathroom*, since the basic meaning of telic motion cannot arguably be predicted/projected by the verb *dance*. But this argument does not commit us to a specific claim about the exact representational format of the expression type that has this feature. On the other hand, our corpus analysis does not at the outset assume a specific theoretical (e.g., constructionist) understanding of the analyzed object. However, we may still want to derive theoretical interpretations from the extracted sample data, which may, e.g., favor an interpretation of involved diagrammaticity/schematicity or verb-framing/projection. In that sense, the present approach is data-driven though the methodology is specifically designed to test typological theories at the same time.[6]

In terms of practical methodology and theoretical assumptions, the implication is that the type of expression that will be used for the corpus analysis should not be defined beforehand as a specific construction type in a theoretical sense. Thus, I will examine 'verbal lexemes in a specific constructional environment of telic motion'. A constructional environment is a syntactic configuration to be

[5] Though the identification of the specific construction type may often be obvious.

[6] See also the discussion in Gries (2010).

used in the corpus analysis, which is not necessarily a construction in a theoretical sense (e.g., a non-derived entrenched form-meaning pairing), but should be seen as a candidate for construction-hood. The advantage of this approach is that we can also analyze the lexeme-construction association data with the objective of deriving theoretical interpretations in relation to the role of schematicity and the verb lexeme in the encoding of argument structure.

4. Methodology

The purpose of this corpus study is to explore the relation between the meaning of the motion verb and its potential occurrence in the telic construction.[7] The main task is to identify motion verbs in the telic motion environment, calculate their association measure with respect to the verbal slot in terms of collostructional analysis, and determine their rank (Stefanowitsch & Gries, 2003). The primary goal is to determine the typological prototype and different patterns of variation. Importantly, however, we also want to attest and characterize the type of motion verbs that do not occur very frequently in the telic environment or do not occur at all in this usage. It is important to keep in mind, however, that this kind of analysis is by no means a detailed semantic characterization of motion verbs in Spanish.

The data sample is extracted from searches in Corpus del Español (Davies, 2002), which is a large monolingual corpus available on the Internet. The corpus consists of around 100 million

[7] Spanish verbs that do not imply motion cannot be attested at all in expressions of directional motion events (Martínez Vázquez, 2001).

words in approx. 14,000 Spanish texts from the 12th to the 20th centuries.[8] The corpus was converted from raw text files that were received from a number of sources (the list of sources is available on the web page). These texts were imported into the SQL Server. Corpus del Español is an annotated corpus, tagged for lemma and parts of speech. The texts from the 19th and 20th century were tagged and lemmatized by Mark Davies and Douglas Biber using a tagger developed by the latter – a hybrid probabilistic/rule-based tagger (personal communication with Mark Davies).

The present study is concerned only with modern Spanish usage in texts and speech from the 20th century (approx. 20.4 million words). This part of the corpus contains oral as well as written language (interviews and transcripts, newspaper and magazine texts, fiction, and academic texts). Written language is dominant in the corpus, and we have to be aware that written versus oral language may be a factor that we should take into account when we analyze expressions of telic motion.[9]

I searched for expressions of goal-oriented motion explicitly marked by the goal-marker *a*: intransitive motion verb + *a* + NP. To avoid the exclusion of relevant data by the determination of the search string, I used a very simple search string: [[V] al/a] (= verb lemma + (goal-marker + definite article in masculine) or only goal-marker). Subsequently, I went through the data manually to exclude all occurrences that were not telic motion. That is, only instances of the constructional environment: [V a NP] / 'telic motion' were selected and counted. For the assessment of verbal constraints on the telic construction, it was important not only to consider motion verbs that actually occur in the corpus in this specific constructional environment of telic motion but also the frequency and semantics of those motion verbs that are only attestable in other usages – for instance, *bailar*

[8] In some cases, data doublets (relatively few cases) have been found. For this reason (also), it is important to go through the data manually. Corpus del Español can be accessed on the website: http://www.corpusdelespanol.org/.

[9] Literature: 25%; Academic texts: 25%; news and magazines: 25%, oral: 25%. We have to take into account that the first three text categories also may include different kinds of oral usage.

'to dance' (motion activity). Therefore, I decided to carry out searches for each motion verb in the corpus, instead of searching for a general pattern that identifies potential instances of the target construction. Thus, the corpus analysis is performed for an inventory of all motion verbs that occur in some usage at least once in the corpus. The inventory of motion verbs (see appendix) corresponds roughly to the intransitive part of the list of motion verbs in Cifuentes Ferez's paper *The semantics of the English and the Spanish motion verb lexicons* (Cifuentes Ferez, 2010), which I have used as a basic reference. Nevertheless, a few motion verbs that are not included in Cifuentes Ferez's list have been identified in the corpus and added to the verb inventory in the present study.[10]

To account for the frequency of a specific verb in the telic construction in relation to the entire verbal distribution in the corpus, I analyzed the Spanish data as a collostructional phenomenon (Stefanowitsch & Gries, 2003) – that is, as a co-occurrence of a constructional environment of telic motion: [SUBJ V *a* NP] / 'telic motion event' and a specific lexical construction of motion: [verbal lexeme] / 'motion'. Collostructional analysis applies the principles of measuring lexical collocation to the interaction of lexemes and the grammatical constructions associated with them in the internal structure of constructions. I followed the general methodology and procedure outlined in Stefanowitsch & Gries (2003) (the standard approach). The statistical analysis of the interaction between the lexemes and the construction is based on Fischer's Exact Test (FET).[11] As Stefanowitsch & Gries (2003) point out, the most important contribution of this kind of distributional analysis is the relative ordering of the verbs according to their attraction to the construction.

The usual purpose of ranking lexemes on the basis of this kind of association measure is to identify a type of lexeme (e.g., top-ranked verbs) with the highest association strength with respect to

[10] For instance, the common verb *volver* 'to go/come back' is included in the present study although, surprisingly, it is absent in Cifuentes Ferez's list of motion verbs.

[11] Calculations of right-tailed *p*-values were conducted by using a web-based FET calculator: http://www.langsrud.com/fisher.htm.

the constructional environment. In addition, I will identify in this study other variation groups by also focusing on lower ranked verbs. The identification of the kind of verbs that are not (or weakly) associated with the construction is an important point of focus as well.

5. Results

I found in total 19,623 tokens of the target construction (telic uses with *a* marker, see example (2)). In the next sections, different outcomes of the quantitative analysis are summarized and interpreted in terms of verb ranking and verb semantics. A complete verb ranking list is provided in the appendix. In the tables, the third column indicates the conceptual component(s) (LCC) that, together with the general component 'motion', is lexicalized by the verb:[12]

Lexicalized Conceptual Components (LCC):

- Motion (−)
- Ground (G)
- Figure (F)
- Path (P)
- Manner (M)
- Cause (C)
- Concurrent Result (CR)

[12] The semantic notions, originated in the Talmian research tradition, are taken from Cifuentes Ferez (2010), whose componential assignments to the verbs are also adopted in most cases. If not, details and explanations will be provided.

- Path + Ground (PG)
- Manner + Ground (MG)
- Path + Manner (PM)
- Figure + Manner (FM)
- Cause + Manner (CM)
- Path + Ground + Manner (PGM)
- Manner + Concurrent Result (MCR)

The fourth column 'all uses' represents the total number of occurrences of each verb in all constructional environments in which it occurs. The next column (telic usage) is the frequency of that verb in the constructional environment of telic motion. The sixth column indicates the telic usage in relation to the general frequency of the verb. The seventh column provides the *p*-value of the Fischer Exact test, and the last column is a $\log_{10}$ transformation of that measure (e.g., Stefanowitch & Gries, 2005) that provides a more reader-friendly measure of the verb ranking: a relatively high $\log_{10}$ value corresponds to a relatively high ranking. The FET calculator returns '0' for extremely low *p*-values, which is indicated as '→0' and, correspondingly, as '→infinite' for the $\log_{10}$-transformed value.

The verb ranking is used to identify and characterize variation groups in terms of association strength (with respect to the telic environment) correlated with similarities of verb semantics. The *p*-values are specifically used as an indicator of relative association – hence the typicality of the verb meaning in the verbal slot of this specific constructional environment – and the chosen breaking point of association as a reference point that helps to categorize the data on typological variation in a meaningful way. The breaking point has been determined to be at the significance level of $p < 0.01$, which indicates the assumed critical level of association that separates the verbs whose frequencies qualify for the feature 'associated with the telic construction' from those verbs that are

'not associated with the telic construction'. The breaking point of association is chosen from the standard levels of significance (e.g., 0.05, 0.01 or 0.001). The selected level is not decisive for the identification of the categories of variation; though it may, in principle, have implications for the categorization of a specific verb. In fact, if we changed the breaking point of association from $p < 0.01$ to $p < 0.001$, a verb would have to change category in only one case due to its *p*-value – the manner verb *rodar* 'to roll' would no longer be considered associated with this constructional environment; and, instead of 'available variation', it would be categorized as 'excludable/exceptional' variation (see Table 3 and appendix).

5.1 General patterns in the data compared to previous research

The typological feature for Spanish identified in Tesnière (1959) and in the Talmian tradition (e.g., Talmy, 1985, 1991, 2000) associates the verb with the conceptual component 'path of motion' in expressions of directional motion. This basic pattern of lexicalization is confirmed by the top-20 verb ranking of lexical association with the verb slot of our specific constructional environment of telic motion, as shown in Table 1:[13]

Table 1. Verb association with the telic motion construction - the top-20 verb ranking

Rank	Verbs	LCC	All uses	Telic usage	Telicity ratio (%)	FET-value-*p*	Log_{10}-trans
1	*regresar* 'to come back'	P	2780	1251	45.00	→0	→infinite

[13] *Marchar*(*se*) has a telic reading ('to go away/somewhere') as well as an atelic activity reading ('to march'). Only the telic verb meaning has been attested in the telic constructional environment. *Montar*(*se*) (see complete verb list in appendix) also has both a telic ('to get on') and an atelic ('to ride') reading. The usage in a telic constructional environment has only been attested with the telic reading of the verb.

2	*acudir* 'to go to a specific place'	P	1171	395	33.73	→0	→infinite
3	*viajar* 'to travel'	(P)-G	1832	512	27.95	→0	→infinite
4	*trasladar*(*se*) 'to move from one place to another'	P	1341	335	24.98	→0	→infinite
5	*entrar* (a/en) 'to enter'[14]	P	6651	1512	22.73	→0	→infinite
6	*subir* 'to ascend, to go up'	P	3209	614	19.13	→0	→infinite
7	*llegar* 'to arrive'	P	19639	3439	17.51	→0	→infinite
8	*acercar*(*se*) 'to move closer to'	P	4229	721	17.05	→0	→infinite
9	*ir*(*se*) 'to go (away) somewhere'	P	56430	4936	8.75	→0	→infinite
10	*volver* 'to come back'	P	12984	1125	8.66	→0	→infinite
11	*salir* 'to exit'	P	12402	920	7.42	→0	→infinite
12	*venir* 'to come'	P	12290	658	5.35	→0	→infinite
13	*dirigir*(*se*) 'to head to'	P	4850	369	7.61	3.83e-252	251.42
14	*emigrar* 'to emigrate'	P-G	350	141	40.29	5.53e-207	206.26
15	*arribar* '(of a ship) to reach port, to arrive'	P	222	107	48.20	2.56e-168	167.59
16	*marchar*(*se*) 'to go (away) somewhere, to march'	P	1149	169	14.71	2.28e-164	163.64
17	*retornar* 'to return, to go back'	P	450	126	28.00	2.89e-161	160.54
18	*aproximar*(*se*) 'to move closer to'	P	491	124	25.25	2.03e-152	151.69
19	*caer*(*se*) 'to fall down'	P	5675	253	4.46	1.74e-119	118.76
20	*bajar* 'to go down'	P	2589	142	5.48	3.46e-79	78.46

In general terms, the lexical meaning of the top-20 verbs implies, as expected, 'path of motion' and not 'manner of motion', which is the typical pattern identified in the literature for Germanic languages. As we may also expect, this specific constructional environment seems to be associated

[14] *Entrar* 'to enter' occur with two different goal markers, *a* and *en*, with an almost equal frequency: 769 and 743, respectively. For more details on the use of *a* versus *en*, see Ibarretxe-Antuñano (2003).

particularly with verb meanings of path of motion that set the scene for a combination with an explicit end point (see the next section). The verb *viajar* 'to travel' is difficult to categorize in terms of semantic components. According to Cifuentes Ferez (2010), it is a manner of motion verb. I believe this is a problematic assessment since the way we move when we travel basically depends on the device of transportation at our disposal. I see *viajar* as displacement over longer distances – typically, far away from a point of reference (e.g., the place of communication) – hence, the ground (G)-component. In addition, this verb is strongly associated with an element of directionality – we refer to an activity that usually implies motion in a specific direction (hence, the P-component in brackets). This associated meaning component seems to license the highly frequent telic usage. Interestingly, the directional component is explicitly encoded in a similar verb such as *emigrar* 'to emigrate' (regarding the associated element of directionality, see also the analysis of verb group B in Section 5.4).

5.2 The construction specific prototype

The classic Talmian typology emphasizes the verbal encoding of the *path component* in Spanish expressions of directional motion; see Sections 2 and 5.1. This is reflected in the fact that the notion of path verbs is frequently used in research papers and textbooks of Spanish linguistics to characterize Spanish expressions of directional motion. However, *path verb* may not be the best denomination for many of the verbs that constitute the prototype in this specific constructional environment, telic motion; e.g., *acudir* 'to go to a specific place' or *llegar* 'to arrive' (see Table 1). At least, it is not a very precise characterization.

The verb ranking identifies those expressions that are highly characteristic and representative of the constructional environment in question and its semantics - a typological prototype. The data

confirms the basic encoding pattern of the Talmian typology: the verbal encoding of the *path component*. In addition, the top-20 verb ranking in Table 1 suggests that, for this specific constructional environment of telic motion, the typological prototype for the verb meaning is: *path of motion leading to an end point*. This aspectual component of telicity is part of the very core meaning of the verb (its lexical aspect), which sets the scene for a combination with an explicitly expressed end point by means of the goal marker (*a*). It applies to all the verbs in Table 1 (except *viajar* 'to travel', see the discussion in the previous section) such as *regresar* 'to come back', *acudir* 'go to a place', *trasladar*(*se*) 'to move to', *venir* 'to come', or *llegar* 'to arrive'. Nevertheless, it does not apply to all types of path verbs that occur in this environment. For instance, path verbs such as *avanzar* 'to move forwards' or *seguir* 'to follow' are basically not telic. Thus, *path of motion leading to an end point* is a more precise denomination of the prototypical verb meaning in this specific constructional environment:

(6) Pedro lleg-ó a su destino
Pedro arrive-PST.3SG to his destiny
'Pedro arrived at his destination'

5.3 Typological graduation

Table 2 illustrates how this study provides a graduated assessment of the typological features for the verb occurring in the constructional environment of telic motion. It is meant to illustrate how we can assess the typological variation in terms of association ranking, taking the verb rank as an indication of the graduated typicality of the semantics encoded by the verb. First and foremost, examples of verbs from the main categories of variation are included. Hence, there are evidently gaps in

this abbreviated version of the ranking (a complete list is provided in the appendix). The omitted verbs lexicalize features that are similar in those verbs included in Table 2.

The bolded line – the breaking point of association – separates the verbs whose frequencies qualify for the feature 'associated to the telic construction' at a significance level of $p < 0.01$ from those featured 'not associated to the telic construction':

Table 2. Graduated verbal association with the telic motion construction

Rank	Verbs	LCC	All uses	Telic usage	Telicity Ratio (%)	FET-value-*p*	Log_{10}-trans
1	*regresar* 'to come back'	P	2780	1251	45	→0	→infinite
5	*entrar* (a/en) 'to enter'	P	6651	1512	22.73	→0	→infinite
7	*llegar* 'to arrive'	P	19639	3439	17.51	→0	→infinite
9	*ir*(*se*) 'to go, to go away'	P	56430	4936	8.75	→0	→infinite
11	*salir* 'to exit'	P	12402	920	7.42	→0	→infinite
12	*venir* 'to come'	P	12290	658	5.35	→0	→infinite
18	*aproximar*(*se*) 'to move closer to'	P	491	124	25.25	2.03e-152	151.69
20	*bajar* 'to go down'	P	2589	142	5.48	3.46e-79	78.46
23	*correr* 'to run'	M	3912	150	3.83	4.57e-63	62.34
24	*huir* 'to flee'	P-M	1129	88	7.79	2.89e-62	61,54
28	*pasar* 'to pass, to go through, over, along, beyond'	P	21593	306	1.42	3.61e-32	31.44
29	*saltar* 'to jump'	M	1233	58	4.70	6.62e-30	29,18
31	*volar* 'to move through the air, to fly'	M-G	995	46	4.62	9.30e-24	23.03
33	*ascender* 'to ascend'	P	760	34	4.47	1.48e-17	16.83
38	*descender* 'to go down'	P	987	27	2.74	1.82e-9	8.74
41	*abalanzar*(*se*) 'to rush toward'	P-M	72	6	8.33	9.65e-6	5.02
45	*partir* 'to leave'	P	5509	58	1.05	0.00075	3.12
49	*cruzar* 'to cross'	P	1984	20	1.008	0.05	1.30

54	*caminar* 'to walk'	M	2347	21	0.89	0.12	0.94
60	*embarcar*(*se*) 'to go on board'	P-G	257	3	1.17	0.25	0.61
64	*desviar*(*se*) 'to divert'	P	423	4	0.95	0.32	0.50
67	*deslizar*(*se*) 'to slide'	M	462	4	0.87	0.37	0.43
72	*adentrar*(*se*) 'to go into the interior part of'	P	146	1	0.68	0.63	0.20
74	*pasear* 'to walk for pleasure'	M	764	4	0.52	0.75	0.12
76	*elevar*(*se*) 'to move upwards'	P	1532	8	0.52	0.80	0.10
85	*flotar* 'to float or to move smoothly'	M	883	1	0.11	0.997	0.001
92	*avanzar* 'to move forwards'	P	2265	2	0.09	0.999996	1.7E-06
93	*alejar*(*se*) 'to move far away from'	P	1774	1	0.06	1	0
94	*conducir* 'to drive'	M	1899	1	0.05	1	0
95	*alcanzar* 'to reach'	P	5342	10	0.19	1	0
247	*bailar* 'to dance'	M	1283	0	0	1	0
248	*atravesar*(*se*) 'to cross'	P	1324	0	0	1	0

The most noteworthy source of variation is the typicality of 'path of motion' versus 'manner of motion', though, evidently, the verbs have additional semantic features that may justify their rank – including some of those semantic components listed in the introduction to Section 5. For instance, as explained in the previous section (5.2), the lexical meaning of the top-ranked verbs – the prototype – tends to be *path of motion leading to an end point*. In the next section (5.4), I will identify and analyze the most significant categories of variation.

The data presented in Table 2 provide clear evidence and confirm, on a quantitative basis, what has been suggested in many studies:[15] that different kinds of user variation do not fit the classic versions of the Talmian typology (Talmy, 1985, 1991, 2000). Most importantly, the association pat-

[15] See, e.g., references in Section 2.

terns show no clear distinction between the typological features 'path of motion' and 'manner of motion' when we look at a broader excerpt of verbs, including not only the most frequent verbs. For instance, manner of motion verbs in combination with a satellite phrase, a characteristic feature of Germanic languages, may also be acceptable in a Romance language such as Spanish, as the relatively high rankings – safely above the breaking point – of verbs such as *correr* 'to run' indicate. We should also notice that some, even rather frequent, path verbs, such as *cruzar* 'to cross' and *elevarse* 'to move upwards', are not strongly associated with this specific constructional environment; and, in fact, these verbs have a much lower ranking – below the breaking point – than certain manner of motion verbs, such as *correr* and *volar*. Even verbs such as *descender* 'to go down' and *ascender* 'to ascend', which are often chosen in the literature as good examples of typical Spanish path verbs, have a lower ranking than manner verbs such as *correr* and *volar*.[16]

5.4 Qualifiable variation

Variation in usage may be categorized and qualified by means of the verb ranking. Based on the distributional analysis that determines the verb ranks of association with the constructional environment of telic motion, we can identify sets of verbs at given p thresholds of association that share basic semantic (typological) features, e.g., path or manner of motion. These verb sets represent groups of qualified variation with respect to the constructional environment of telic motion.

We can identify directly from the distributional analysis four groups of variation that I will term as follows:

[16] It should be emphasized that path verbs such as *descender* and *ascender* may still have a stronger association with the more general constructional environment of directional motion compared to the manner verbs *correr* and *volar*, though this is something that has to be investigated. The data in the present study show that the former verbs are less associated with the more specific telic environment than are the latter ones.

1) The prototype. Threshold $p \approx 0$,
2) Available variation. Threshold $p < 0.01$,
3) Excludable variation. Threshold $p > 0.01$,
4) Unavailable variation. Threshold $p \approx 1$.

5.4.1 The prototype

All the verbs (A) in the first group of variation have the basic semantic feature 'path of motion'; see Section 5.2:

A) The prototype (see Table 1)

(7) Pedro llegó a Madrid a las 5
Pedro arrive-PST.3SG to Madrid at the 5
'Pedro arrived in Madrid at 5'

5.4.2 Available variation

The second group of variation that emerged from the distributional analysis ('available variation') is characterized by having a *p*-value that is lower than 1% indicating positive associations with the constructional environment (relatively high rank) but with a lower rank than the constructional prototype, represented by the top 20 verbs. This group of variation consists of two major verb types characterized by the basic semantic features 'path of motion' and 'manner of motion', respectively. Since the path verbs coincide with the prototype with respect to this basic feature, I will focus on the other verb group of 'available variation', namely, the one featured by manner verbs (B):

B) Available manner verbs (see Table 3)

(8) Pedro corr-ió a la playa

Pedro run-PST.3SG to the beach

'Pedro ran to the beach'

Association data for this group of variation is extracted in Table 3:

Table 3. Available variation – manner of motion verbs

Rank	Verbs	LCC	All uses	Telic usage	Telicity ratio (%)	FET-value-*p*	Log_{10}-trans
23	*correr* 'to run'	M	3912	150	3.83	4.57e-63	62.34
24	*huir* 'to flee'	P-M	1129	88	7.79	2.89e-62	61.54
29	*saltar* 'to jump'	M	1233	58	4.70	6.62e-30	29.18
31	*volar* 'to fly'	M-G	995	46	4.62	9.30e-24	23.03
32	*lanzar*(*se*) 'to throw oneself, to pounce on something/somebody'	M	2548	66	2.59	1.17e-19	18.93
34	*tirar*(*se*) 'to throw oneself '	M	2017	62	3.07	7.51e-16	15.12
35	*arrojar*(*se*)	M	824	33	4.00	1.04e-15	14.98
36	*precipitar*(*se*) 'to fall down from a high place, to run, to hurry to'	P-M	323	21	6.50	1.57e-14	13.80
39	*afluir* 'to flow in/into/to/toward'	P-M	11	4	36.36	6.39e-7	6.19
41	*abalanzar*(*se*) 'to dash to'	P-M	72	6	8.33	0.000009	5.016
47	*rodar* 'to roll'	M	38	3	7.89	0.002126	2.67

Manner of motion verbs may be roughly subdivided into those whose meaning is somehow associated with directionality – for instance, *running* and *flying* – and those that are not, such as *dancing* or *floating*. The lexical meaning of the former type has, if not an explicit component of 'path of motion' (see column 3), an associated element of directionality; and they are typically used in a goal-oriented context. It is plausible to hypothesize that manner verbs of this type are relatively more accessible in combinations with telic path predicates.[17]

In fact, the lexical meaning of the manner verbs in the B-group, as shown in Table 3, has the co-component 'path of motion' (P) and/or an associated element of directionality that seems to license the telic usage. The same semantic description applies to verbs in the C-group (see below), though the manner verbs in this variation group are very rare and occur with a very low frequency. Thus, manner verbs with an element of path/directionality are expected to be found in the telic usage with a frequency that seems to depend on the salience of the associated directional meaning (see the discussion of the C-group).

5.4.3 Excludable variation

In the third variation group identified by the distributional analysis are excludable variants, which are observable with a very low frequency. They are characterized by having a higher *p*-value than 1%, indicating a relatively weak/no association to the constructional environment in question. This group of variation can profitably be divided into two subgroups, featured by path and manner verbs, respectively.

C) Excludable manner verbs (see Table 4)

[17] See Pedersen (2014) for more details on Spanish manner of motion verbs in telic usage.

Some of the excludable verbs are manner of motion verbs, e.g., *caminar* 'to walk', *deslizar*(*se*) '*to slide*', *andar* 'to walk', *pasear* 'to walk for pleasure':

(9) And-a a-l hotel donde yo estoy,… (Davies, 2002)
Go-IMP.SG to-the hotel where I be.PRS.1SG
'Go to the hotel where I'm staying'

(10) ?? Camin-ó a la biblioteca
walk-PST.3SG to the library'
'He walked to the library'

This usage is very infrequent and the verbs are scarcely associated with telic usage (*p*-value > 1%). Most of the verbs in this subgroup have a certain element of associated directionality (as do the verbs in the B-group); but, importantly, the former type seems to have a relatively more salient manner profile as compared to the latter type. The telic usage is observable but very rare and in many cases disputable; see (10).

D) Excludable path-verbs (see Table 4)

A subgroup of path verbs represents another group of excludable variation. This subgroup of path verbs are very weakly associated to the telic environment (*p*-value > 1%) due to their specific semantics. The verbs may have a relatively strong profile of directionality, though most of the verbs may only be observed in this environment in very specific telic contexts:

(11) Avanzó a-l semáforo

Advance-PST.3SG to-the traffic light

'he moved forward to the traffic light'

The group is very diverse. Some of the verbs have a verb meaning that explicitly includes the end location of a telic motion event: *encumbrar* 'to reach the top of ', *embarcar*(*se*) 'to go on board', *atracar* '(of a ship) to reach port', *adentrarse* 'to go into the interior part of'. It seems that the explicit verbal indication of the final destination in these cases is blocking further elaborative goal marking. This is not quite the same with regard to the rareness of a similar group of telic verbs, e.g., *levantarse* 'to stand up, to raise'. The reason the use of this latter group of telic verbs is blocked in the telic environment – while verbs such as *entrar* 'to enter' or *salir* 'to go out' certainly are not – seems to be that the potential meaningfulness to elaborate on the end location by means of a goal-marker phrase is minimal due to the specific verb meaning, e.g., *levantarse* 'to stand up → to where??'. Some of the verbs express motion in different directions: *esparcir* 'to move in different directions', impeding the indication of a specific end location by means of goal marking. Some of the verbs have an implicated origin in their lexical meaning that seems to impede the telic elaboration: *apartarse* 'to move away from' → *se apartó a*…?? 'he moved away from to…'), *alejarse* 'to move far away from' → *se alejó a*…?? 'he moved far away from to…'). Finally, some excludable verbs have such a high frequency in other constructional environments (e.g., *alcanzar* 'to reach', *seguir* 'to follow') that this very high general frequency in combination with a low frequency of telic usage will downgrade their association to this specific constructional environment to such a degree that users may consider this usage rare and exceptional.

The association data on excludable variation is provided in Table 4. The different verb types are excludable to a different degree, depending on their rank:

Table 4. Excludable variation – path verbs and manner of motion verbs

Rank	Verbs	LCC	All uses	Telic usage	Telicity ratio (%)	FET-value-*p*	Log_{10}-trans
53	*retroceder* 'to go back, to back down'	P	372	5	1.34	0.11	0.97
54	*caminar* 'to walk'	M	2347	21	0.89	0.12	0.94
57	*encumbrar* 'to reach the top of '	P	23	1	4.35	0.14	0.84
60	*embarcar*(*se*) 'to go on board'	P-G	257	3	1.17	0.25	0.61
63	*atracar* '(of a ship) to reach port'	P	53	1	1.89	0.30	0.52
67	*deslizar*(*se*) 'to slide'	M	462	4	0.87	0.37	0.43
70	*esparcir*(*se*) 'to move in different directions'	P	132	1	0.76	0.59	0.23
72	*adentrar*(*se*) 'to go into the interior part of'	P	146	1	0.68	0.63	0.20
74	*pasear* 'to walk for pleasure'	M	764	4	0.52	0.75	0.12
80	*adelantar*(*se*) 'to move forwards'	P	779	3	0.39	0.89	0.05
86	*andar* 'to walk'	M	3330	10	0.30	0.999	0.0005
87	*apartar*(*se*) 'to move away from'	P	1023	1	0.10	0.999	0.00045
92	*avanzar* 'to move forwards'	P	2265	2	0.09	0.999996	1.7E-06
93	*alejar*(*se*) 'to move far away from'	P	1774	1	0.06	1	0
95	*alcanzar* 'to reach'	P	5342	10	0.19	1	0
96	*seguir* 'to follow'	P	15308	14	0.09	1	0
97	*levantar*(*se*) 'to stand up, to raise'	P-M	3896	3	0.08	1	0

5.4.4 Unavailable variation

A large group of motion verbs does not occur at all in telic usage. Like the third group, this last variation group that emerged directly from the distributional analysis (unavailable variation, *p*-value ≈ 1) can be divided into two subgroups of path verbs and manner verbs, respectively.

E) Unavailable path verbs (see Table 5)

This small group of path verbs does not occur in telic usage and show, correspondingly, no association at all to the telic environment (*p*-value ≈ 1); for instance, *distanciar*(*se*) 'to move away from', or *dispersar*(*se*) 'to disperse'. The unavailability in the goal-oriented environment is due to their specific verb semantics (cf. group D):

(12) *Se distanc-ió de… a-l otro lado
REFL distance-PST.3SG from to-the other side
'he moved to the other side away from…'

F) Unavailable manner verbs (see Table 5)

Most of the unavailable motion verbs are, however, manner verbs:

(13) *Pedro bail-ó a-l baño
Pedro dance-PST.3SG to-the toilet
'Pedro danced to the toilet'

This is a very large group of manner verbs (see appendix) that show no association at all with the constructional environment of telic motion (*p*-value ≈ 1). This group of manner verbs has no lexicalized element of associated directionality. As an example, we can think about the verb *bailar* 'to

dance'. When we dance, we are not intentionally moving in a specific direction the way we are when we run (cf. the manner verbs of group B, Table 3).

Table 5 provides an excerpt of all the verbs that are unavailable for telic usage:

Table 5. Unavailable verbs for telic usage

Rank	Verbs	LCC	All uses	Telic usage	Telicity ratio (%)	FET-value-*p*	Log_{10}-trans
112	*ambular* 'to wander about'	M	9	0	0	1	0
136	*cojear* 'to limp'	M	22	0	0	1	0
138	*pedalear* 'to pedal'	M	24	0	0	1	0
159	*gatear* 'to crawl, to climb like a cat'	M	39	0	0	1	0
168	*reptar* 'to crawl or to move like a reptile'	M	51	0	0	1	0
171	*remar* 'to row, to paddle'	M	53	0	0	1	0
176	*esquiar* 'to ski'	M	58	0	0	1	0
179	*empinar*(*se*) 'to stand up'	M	63	0	0	1	0
182	*trotar* '(of a person) to trot, to ride a trotting horse'	M	66	0	0	1	0
195	*corretear* 'to run about'	M	79	0	0	1	0
201	*distanciar*(*se*) 'to move away from'	P	99	0	0	1	0
202	*cabalgar* 'to ride a horse'	M	101	0	0	1	0
204	*enderezar*(*se*) 'to become straight'	M	120	0	0	1	0
205	*galopar* 'to gallop, to ride a galloping horse'	M	123	0	0	1	0
208	*deambular* 'to walk around'	M	127	0	0	1	0
210	*balancear*(*se*) 'to swing'	M	152	0	0	1	0
212	*aterrizar* 'to land'	P-G	160	0	0	1	0
216	*vagar* 'to wander'	M	186	0	0	1	0
218	*desfilar* 'to parade, to walk in file'	M	191	0	0	1	0

219	*despegar* 'to take off'	P-G	194	0	0	1	0
222	*dispersar*(*se*) 'to disperse'	P	241	0	0	1	0
235	*acelerar* 'to speed up, to accelerate'	M	473	0	0	1	0
241	*derivar* 'to drift'	M	890	0	0	1	0
245	*alzar*(*se*) 'to rise'	P-M	990	0	0	1	0
247	*bailar* 'to dance'	M	1283	0	0	1	0

Table 6 summarizes the results. The relative thickness of the lines separates higher verb ranking from lower verb ranking and, correspondingly, more availability from less availability:

Table 6. Summarized results

Group	Rank	Verbs	LCC	All uses	Telic usage	Telicity ratio (%)	FET-value-*p*	Log_{10}-trans
A	7	*llegar* 'to arrive'	P	19639	3439	17.51	→0	→infinite
	8	*acercar*(*se*) 'to move closer to'	P	4229	721	17.05	→0	→infinite
B	23	*correr* 'to run'	M	3912	150	3.83	4.57e-63	62.34
	31	*volar* 'to move through the air, to fly'	M-G	995	46	4.62	9.30e-24	23.03
C	54	*caminar* 'to walk'	M	2347	21	0.894759	0.12	0.93632
	86	*andar* 'to walk'	M	3330	10	0.3003	0.998791	0.00053
D	92	*avanzar* 'to move forwards'	P	2265	2	0.0883	0.999996	1.7E-06
	93	*alejar*(*se*) 'to move far away from'	P	1774	1	0.0563	1	0
E	201	*distanciar*(*se*) 'to move away from'	P	99	0	0	1	0
	212	*aterrizar* 'to land'	P-G	160	0	0	1	0
F	216	*vagar* 'to wander'	M	186	0	0	1	0
	247	*bailar* 'to dance'	M	1283	0	0	1	0

In sum, this study has identified and analyzed the following groups of variation with respect to motion verbs in telic usage:

Group A: The prototype – path (endpoint) verbs

Group B: Available manner verbs

Group C: Excludable manner verbs

Group D: Excludable path verbs

Group E: Unavailable path verbs

Group F: Unavailable manner verbs

The semantic analyses of the verb groups A-F in Section 5.4 suggest that the Spanish construction of telic motion is highly constrained by the semantics of the verbal lexeme. When comparing the examples (7)-(12) with (13) and groups A-E with the large verb group F, it becomes clear that as a minimum condition, a lexical element of associated directionality is required. The verbs in group F have no such element. Furthermore, as evidenced by the excludable/unavailable verbs in the C-E groups, which all have an associated element of directionality, the lexical implication of directionality is necessary but not sufficient. This is so because other elements of verb semantics evidently play a role as well, as discussed in Section 5.4.

Moreover, in the (unavailable) expressions of telic motion with manner verbs (the available B-, the excludable C-, and the unavailable F-group), verbal constraints impose conditions for both the expression of path/telicity (some verbal element of directionality is a minimum condition, cf. F) and the expression of manner (the manner profile cannot be too salient in relation to the associated element of directionality, cf. C). In sum, the verb seems to be a principal constraining factor that has to

license the use of the verb in the telic environment. Conversely, the translation of example (13) (= group F) suggests that the corresponding English construction of telic motion is, first and foremost, constrained by the availability of a schematic argument structure construction of telic motion. In the verbal slot, this skeletal construction is filled relatively freely by a verb that only has to be semantically compatible (cf. Goldberg 1995): *Pedro danced to the toilet*.

6. Theoretical discussion – Spanish as a verb-framing language

From the usage-based perspective adopted in this article, this situation of substantial and diverse inter- and intra-linguistic variation that conflicts with the prevailing typological assumptions exposes a theoretical weakness of the Talmian research tradition in addition to the methodological challenges. Some fundamental theoretical aspects need to be reconsidered. We have to address the question of whether framing events (= main events) such as 'path of motion', should be considered typological universals. In Talmy's later work (Talmy, 1991, 2000), the main event (ME), e.g., the 'path of motion', is assumed to be a universal framing event with the status of *tertium comparationis* in the typology. From a usage-based perspective, this is a problematic assumption that may not correspond to psychological reality since, according to this view, grammar is structured on the basis of generalizations about usage (e.g., Barlow, 2011; Barlow & Kemmer 2000; Goldberg, 2006; Langacker, 1987, 1988). It is clear that 'path of motion' is a conceptual universal, and the expression of the path component is, undoubtedly, an essential semantic component that divides the languages into different groups. This is clearly confirmed for the telic motion construction by the Spanish data on this construction in the present study (see Table 1). However, there may be fundamental principles behind these groupings that more adequately – and with deeper insight – capture the cross-

linguistic differences and the intra-linguistic variation. For instance, expressions of directional motion cannot always be described successfully in terms of a formal (verb or satellite) mapping on to the 'path of motion' event or another framing event. In fact, in his analysis of (14), Talmy states that the main (framing) event (ME) is the transitive motion event ('X moved Y into Z') and that the supportive co-event (CE) is the causal event ('X kicked Y'):

(14) I kicked the ball into the box (Talmy, 2000, II, pp. 228)

CE ME??

However, Talmy's typological model does not work in this case. In accordance with his framework in which English is a satellite-framed language, the framing (main) event (ME), 'I moved the ball into the box', is mapped onto the satellite *into*. To argue that the transitive causal element 'X caused Y to move Z' should be part of the meaning of *into* is implausible. This point is complementary to the one made by Goldberg (1995) in her analysis of the caused motion construction (e.g., *he sneezed the napkin off the table*) in which she claims that the verb meaning cannot account for the basic (caused motion) meaning of the construction. I suggest that, if a generalized typology, as the Talmian typology claims to be, is to account for English expressions of directional motion, the *typological units* must be *constructional units* – including lexical and schematic constructions (Pedersen, 2009a). In such an analysis, the framing event (ME), 'I moved the ball into the box', is mapped onto the schematic form of the caused motion construction ([SUBJ V OBJ OBL]); and the supportive co-event (CE) (= the causal event 'X kicked Y') is mapped onto the verbal lexeme construction ([--Kick--]).

Typological distinctions based on constructional units are often understood as a question of whether specific construction types exist, or do not exist, in one or another language - though gen-

eralizations can be made. According to Morimoto (2008), for instance, the alleged ungrammaticality in Spanish of the expression type in (15) is due to the absence of this construction type in Spanish:[18]

(15) *Pedro camin-ó a la biblioteca (Morimoto, 2008, p. 288)
Pedro walk-PST.3SG to the library
'Pedro walked to the library'

Nevertheless, we have seen that not only characteristic Spanish expressions of directed motion, such as (16):

(16) Pedro fue a la biblioteca (camin-ando)
Pedro move.PST.3SG to the library (walk-GERUND)
'Pedro walked to the library'

but also the "Germanic type" – cf. (15) – are substantially attested in the data (see Section 5.4) and mentioned in the literature (see Section 2). That is, examples like (17) in which *correr* is an atelic manner of motion verb are perfectly acceptable in the right context, even though they clearly implicate a goal-directed telic action. Moreover, this usage is relatively frequent:

(17) Corr-ió a-l lavabo (Pedersen, 2013, p. 260)

[18] Morimoto's analysis is based on Aske (1989). According to Aske, the inability of Spanish to express the path of motion in a satellite and the manner in the verb is limited to telic motion events. He argues that secondary predicates (i.e., complex predicates) are not allowed in Spanish.

run-PST.3SG to-the toilet

'he ran to the toilet'

Thus, the corpus data highlight several difficulties or challenges. First, general statements about the availability of specific expression types such as 'this construction type is not available in language X' may not be conclusive – and are often refutable by means of corpus data (see, e.g., *caminar* 'to walk' in the telic motion construction – cf. example (15)). Second, there is a somewhat converse risk that we will end up with what we may characterize as extensive amounts of unqualified variation, that is, endless lists of expression types in each language at a very detailed level. The mere observation that an unexpected linguistic phenomenon may still be considered as available in language X when the corpus from which the data has been extracted is big enough may be an unsatisfying insight. In the present study, it has been my intention to try to avoid or, at least, minimize this latter potential flaw in the corpus analysis by qualifying the observed variation: *caminar* 'to walk' and *correr* 'to run' in the telic motion construction represent 'excludable variation' and 'available variation', respectively.

In addition, we should not restrict ourselves to a mere focus on the (un)availability of, for instance, telic expressions in combination with manner of motion verbs. This quantitative study has confirmed the hypothesis suggested in previous studies: only Spanish motion verbs that lexicalize an element of associated directionality may license the construction of telic motion (Pedersen, 2013, 2014; see also Son, 2007). Thus, the constraining role of the Spanish verb lexeme is essential in the construction of telic motion. Conversely, the characteristic role of the schematic construction in English argument structure constructions, including the construction of directional motion, is well-described in some constructionist frameworks (e.g., Goldberg, 1995).

The combination of these insights suggests that the typological differences between English and Spanish expressions of directional motion may be anchored in the role of schematicity as opposed to the constraining role of the verbal lexeme. This is an attractive approach to the typological theory – particularly, because similar patterns in other types of argument structure/semantic domains can be observed (see Pedersen, 2013, and the following examples (18)-(30)). In the English *way* construction, for instance, none of the lexical items have *per se* a central, organizing role in the encoding of the basic meaning, which is: 'the subject moves somewhere (with difficulty) by creating a path' (e.g., Goldberg, 1995; Jackendoff, 1990). Specifically, the basic meaning is not predictable from the verb meaning *fought*. Instead, a schematic form, a *way* construction, carries its own characteristic meaning, while the verb *fought* specifies the means of carrying out this motion event:

(18) [Peter [fought] his way out of the restaurant] (Pedersen, 2013, p. 242)

[SUBJi V POSSi *way* OBL] / 'X moving Y by creating a path'

[fought] / 'specification of means'

In Spanish versions of the *way* construction, the basic meaning of 'creating a path' is always predictable and, therefore, projectable from the inherent meaning of the verb – e.g., *abrirse camino para salir*…'open for himself a way in order to move somewhere':

(19) Pedro se [abr-ió] camino ([a codazos]) (Pedersen, 2013, p. 242)

Pedro DAT open-PST.3SG way (by using elbows)

[SUBJ, DAT, abrir, OBJ] / 'X creates path to move…'

[Adverbial construction] / 'means of motion'

Specifying information about the means of motion may be added as an adverbial construction (*a codazos*). Thus, the Spanish version of the *way* construction, when it comes to how the core argument structure and the specifying information are organized, seems to differ systematically from the English version.

The core meaning of the English ditransitive construction involves transfer between a volitional agent and a willing recipient (Goldberg, 1995):

(20) She gave him a cake (prototype)

(21) Le dio una torta
DAT give.PST.3SG a cake

As we can see in example (21), Spanish has comparable expressions. However, in prototypical expressions, as in (20)-(21), there are no indications whether the transfer meaning is provided by means of lexical government[19] or in a schematic argument structure construction with transfer meaning, elaborated by the lexical specification. "The confusion" is due to the fact that the transfer meaning of the clause is perfectly attributable to the basic meaning of the trivalent verb both in English and Spanish: 'to give something to someone'. Atypical examples, conversely, such as (22), taken from Goldberg (1995), indicate that the transfer meaning must be provided by an independent ditransitive argument structure construction and that the activity of baking is specified by the verb.

[19] The notion *lexical government* refers to what has been termed *the lexical approach* (see, e.g., Grimshaw, 1990; Levin & Rappaport Hovav, 1995; Pinker, 1989) but also to the compositional principles in cognitive grammar. It refers to encoding devices based on principles of lexical (verbal) projection, subcategorization, and conceptual valence structure with a lexical profile determinant (Langacker, 1987).

Thus, the main argument for the role of schematicity is that the transfer meaning cannot plausibly be part of the lexical meaning of *bake*:

(22) She baked him a cake (Goldberg, 1995)

However, in this case, Spanish cannot match the English ditransitive. Spanish has clausal patterns that are similar to the ditransitive, as exemplified in (21), though not in combination with verbs that do not predict the characteristic transfer meaning (Martínez Vázquez, 2003; Pedersen, 2009b).

The same line of argument applies for the resultative argument structure:

(23) He kissed her unconscious (Goldberg, 1995)

(24) *La bes-ó inconsciente
ACC kiss-PST.3SG unconscious
'her he kissed unconscious'

(25) La desmay-ó con un beso
ACC faint-PST.3SG with a kiss
'her he fainted with a kiss'

Again, Spanish does not allow any expression that is parallel to the English resultative, see (23)-(24), unless the basic resultative meaning is predictable from the verb, as in (25).

In prototypical communicative expressions, such as (26) and (27), there is no indication of whether the communicative argument structure is projected by the verb or whether it is organized in

a schematic argument structure construction and specified by the verb. The reason is that the verb meaning overlaps with the overall clausal communicative meaning:

(26) He said yes

(27) Dijo que sí
say.PST.3SG that yes

However, expressions with mismatch between the clausal communicative meaning and the verb meaning, such as (28), indicate that the communicative argument structure is not projected by the verb. Instead, it may be the case that the communicative argument structure is organized in a schematic construction and that the communicative act is elaborated by the verb:

(28) He nodded yes

The rationale is in this case that the meaning of communicating something, arguably, is not part of the lexical meaning of nodding. This kind of mismatch between the semantics of the verb and the communicative meaning is very productive in English, as opposed to Spanish, which only allows them sporadically (Martínez Vázquez, 2003):

(29) *Cabece-ó un sí
nodd-PST.3SG a yes

Instead, an expression type in which the communicative argument structure is projected by the verb would be a typical Spanish version of (28):

(30) Asint-ió con la cabeza
consent-PST.3SG with the head
'he consented with his head'

To sum up, this study gives another perspective on the typological issues. I have suggested a quantitative methodology that allows us to categorize and qualify the variation, distinguishing significant from less significant variation. In particular, this approach offers an improved usage-based understanding of the role of the Spanish motion verb in a specific constructional environment. I have argued that, in Spanish (in general), the constraining role of the verb is essential, while the role of the schematic argument structure construction is different and not predominant as Goldberg (1995, 2006) argues it is in English (cf. the discussion in this section). Based on the corpus data on the construction of telic motion and supported by evidence from other domains of argument structure, I suggest a typological characterization of Spanish that is centered in this cross-linguistic difference.

Importantly, this is not merely a matter of differences between English argument structure and Spanish argument structure. In many typologically-related languages, the verbs are much more restrictive than they are in English in the sense that they only appear in syntactic environments that match their meanings (Goldberg, 2006). Other Romance languages seem to behave like Spanish in this respect – the French version of the *way* construction, for instance, is very similar to the Spanish version with respect to its verbal projection of the argument structure (Pedersen, 2013) – and, importantly, so do non- or less-related languages such as Turkish and Hindi (Narasimhan, 2003). Based on the observation that there are fundamental constraints on Spanish argument structure

(highly verb constrained) that we do not find in English argument structure, we may hypothesize that, instead of mapping form and universal meaning components (the Talmian tradition), emphasis should be on the role of *schematic construction* versus *lexical construction*, as the fundamental typological parameter.

In a general perspective, this study suggests that cross-linguistic analyses of the lexicon-construction associations in languages X versus Y may contribute to uncovering the relative importance of the major driving forces in the encoding of argument structure: lexical projection of / constraints on argument structure versus schematic argument structure construction. The data presented supports what I have previously suggested for a broader range of semantic domains (Pedersen, 2013): the encoding of Spanish argument structure seems to be basically verb-driven (as opposed to construction-driven). A characterization of Spanish argument structure as verb-driven is not the same as categorizing Spanish as a verb-framed language in the Talmian research tradition. In the latter descriptive typology, the notion verb-framed refers to the lexical mapping of the verb onto the path of motion or, in general terms, onto a universal framing event. Verb-driven refers to lexical organization and constraints on argument structure as an encoding strategy. In that sense, it corresponds to a different version of Talmy's characterization of Spanish that has a more far-reaching explanatory potential: Spanish is a *verb-framing* language. This characterization of Spanish explains the variation observed in this study, which diverges from the classic patterns originating in the Talmian tradition.

7. Conclusion and perspectives

In this article, I have analyzed the use of Spanish motion verbs in a constructional environment of telic motion on the basis of large amounts of corpus data. The observed patterns of typological variation have been qualified in terms of verb association with the constructional environment. Six groups of motion verbs have been identified and discussed with respect to their telic usage:

Group A: Prototypical verbs in telic usage.
Group B: Available manner verbs in telic usage
Group C: Excludable manner verbs in telic usage
Group D: Excludable path verbs in telic usage
Group E: Unavailable path verbs in telic usage
Group F: Unavailable manner verbs in telic usage

In future research, the constructional environment may be extended to include directional motion in general and not only telic motion. Typological variation can also be measured in other slots of the constructional environment – e.g., the slot of the goal/direction marker. Or the constructional environment may be another semantic domain of argument structure. In general, current proposals of all kinds of typological features can be quantitatively evaluated and typological prototypes and variation may be identified on the basis of measurements of lexical or morphological association with well-defined constructional environments. Importantly, typological variation in other languages can be assessed in exactly the same way. In sum, this study opens up for a whole array of quantitative and innovative typological research.

The assessment of typological patterns of lexicalization in specific constructional environments, as opposed to the usual universal approach, also has limitations. The results of one single study have a limited scope since, in principle, they are only valid for the defined constructional environ-

ment. The study has to be complemented by studies in other constructional environments. As a consequence, this kind of usage-based study of typological patterns is by its nature extremely time-consuming.

Cross-linguistic analyses of lexeme-construction associations may lead to a better understanding of the driving forces in the encoding of argument structure. Based on evidence from a broad range of semantic domains and the data on telic motion presented in this paper, I have argued that the encoding of Spanish argument structure seems to be basically verb-driven. Moreover, I have argued that this is not so in Germanic languages, such as English, in which construction-driven encoding of argument structure, according to some CxG grammarians, is fundamental (e.g., Goldberg, 1995, 2006).

The constructionist focus in this article has moved away from the ongoing discussion of what counts as a construction in a theoretical sense. Instead, it is directed to the question of *how* lexemes and schematicity play a role in the organization of argument structure in different languages. I do certainly not claim that the formation of schematic argument structure constructions is not applicable to Spanish. We may hypothesize that schematic argument structure constructions have a different, elaborative role in Spanish when compared to the prominent role they are assigned in Goldberg's work.[20]

I suggest that there should be more emphasis in future studies on the role of schematicity versus lexical constraints as a fundamental typological parameter. This would enable us to make more insightful typological distinctions on the basis of the relative importance of schematic and lexical constraints on the organization of argument structure. From this perspective, we would characterize Spanish as a verb-framing language rather than a verb-framed language (cf. Talmy, 2000). A char-

[20] For more details, see Pedersen (submitted).

acterization of Spanish as a verb-framing language would predict the kind of inter- and intra-linguistic variation observed in this study.

References

Aske, J. (1989). Path predicates in English and Spanish: A closer look. In K. Hall, M. Meacham, & R. Shapiro (eds.), *Proceedings of the Fifteenth Annual Meeting of the Berkeley Linguistics Society* (pp. 1–14). Berkeley: Berkeley Linguistics Society.

Barlow, M. (2011). Corpus Linguistics and theoretical linguistics. *International Journal of Corpus Linguistics*, 16:1, 3-43.

Barlow, M. & Kemmer, S. (eds.) (2000). *Usage based models of language*. Stanford: CSLI Publications.

Beavers, J., Levin, B. & Shiao Wei, T. (2010). The typology of motion expressions revisited. *Journal of Linguistics*, 46-3, 1-58.

Berman, R. A. & Slobin, D. I. (1994). *Relating events in narrative: A crosslinguistic developmental study*. Hillsdale, NJ: Erlbaum.

Boas, H. C. (2003). *A constructional approach to resultatives*. Stanford: CSLI Publications.

Boas, H. C. (ed.). (2010a). *Contrastive studies in construction grammar*. Amsterdam: John Benjamins.

Boas, H. C. (2010b). The syntax–lexicon continuum in Construction Grammar. A case study of English communication verbs. *Belgian journal of linguistics*, 24-1, 54-82.

Bybee, J. (1985). *Morphology: A study of the relation between meaning and form*. Amsterdam: John Benjamins.

Bybee, J. (2006). From usage to grammar: The minds response to repetition. *Language* 82 (4), 711-733.

Bybee, J. (2007). *Frequency of use and the organization of language*. Oxford: Oxford University Press.

Cifuentes Ferez, P. (2010). The semantics of the English and the Spanish motion verb lexicons. *Review of Cognitive Linguistics* 8-2, 233-271.

Davies, M. (2002). Corpus del Español. Http://www.corpusdelespanol.org

Croft, W. (2001). *Radical construction grammar*. Oxford: Oxford University Press.

Croft, W., Barddal, J., Hollmann, W., Sotirova, V. & Taoka, C. (eds.). (2010). Revising Talmy's typological classification of complex event constructions. In H. C. Boas (ed.), *Contrastive construction grammar* (pp. 201-35). Amsterdam: John Benjamins.

Fanego, T. (2012). Motion events in English: The emergence and diachrony of manner salience from Old English to Late Modern English. *Folia linguistica historica*, 33, 29-85.

Gennari, S. P., Sloman, S. A., Malt, B. C., & Fitch, W. T. (2002). Motion events in language and cognition. *Cognition* 83, 49-79.

Goldberg, A. E. (1995). *Constructions. A construction grammar approach to argument structure*. Chicago: University of Chicago Press.

Goldberg, A. E. (2006). *Constructions at work. The nature of generalization in language*. Oxford: Oxford University Press.

Goldberg, A. E. & Jackendoff, R. (2004). The English resultative as a family of constructions. *Language* 80, 532-568.

Gries, S. Th. (2010). Corpus linguistics and theoretical linguistics. A love–hate relationship? Not necessarily… *International Journal of Corpus Linguistics* 15:3, 327–343.

Gries, S. Th. (2012). Frequencies, probabilities, association measures in usage-/exemplar-based linguistics: some necessary clarifications. *Studies in Language* 36(3), 477-510.

Grimshaw, J. (1990). *Argument structure*. Cambridge, MA: MIT Press.

Ibarretxe-Antuñano, I. (2003). Entering in Spanish: Conceptual and semantic properties of *entrar en/a*. *Annual Review of Cognitive Linguistics 1*, 29-59.

Ibarretxe-Antuñano, I. (2004a). Language typologies in our language use: The case of Basque motion events in adult oral narratives. *Cognitive Linguistics* 15–3, 317–349.

Ibarretxe-Antuñano, I. (2004b). Motion events in Basque narratives. In S. Strömqvist & L. Verhoeven (eds.), *Relating events in narrative: Typological and contextual perspective*s (pp. 89-111). New Jersey: Lawrence Erlbaum.

Ibarretxe-Antuñano, I. (2009). Path Salience in Motion Events. In J. Guo, E. Lieven, N. Budwig, S. Ervin-Tripp, K. Nakamura & S. Őzçalişkan (eds.), *Crosslinguistic approaches to the psychology of language: Research in the tradition of Dan Isaac Slobin* (pp. 403-414). New York: Psychology Press.

Jackendoff, R. (1990). *Semantic structures*. Cambridge, MA: MIT Press.

Jackendoff, R. (1997). *The architecture of the language faculty*. Cambridge, MA: MIT Press.

Langacker, R. W. (1987). *Foundations of cognitive grammar*, Vol. I. Stanford, CA: Stanford University Press.

Langacker, R. W. (1988). A usage-based model. In B. Rudzka-Ostyn (ed.), *Topics in cognitive linguistics* (pp.127-161). Amsterdam: John Benjamins.

Levin, B. & Rappaport Hovav, M. (1995). *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge, MA: MIT Press.

Masini, F. (2005). Multi-word expressions between syntax and the lexicon: The case of Italian verb-particle constructions. *SKY Journal of Linguistics*, 18, 145-173.

Masini, F. (2008). Verbi sintagmatici e ordine delle parole. In M. Cini (ed.), *I verbi sintagmatici in italiano e nelle varietà dialettali. Stato dell'arte e prospettive di ricerca*. (Spazi comunicativi - Kommunikative Räume, Vol. 3) (pp. 83-102). Frankfurt am Main: Peter Lang.

Martínez Vázquez, M. (2001). Delimited events in English and Spanish. *Estudios Ingleses de la Universidad Complutense*, 9, 31-59.

Martínez Vázquez, M. (Ed.). (2003). *Gramática de Construcciones. Contrastes entre el inglés y el español*. Universidad de Huelva.

Mateu Fontanals, J. (2000). Path and telicity in idiomatic constructions. A lexical-syntactic approach to the Way-construction. Paper presented at the 2000 ESSLLI Workshop on Paths and Telicity in Event Structure. University of Birmingham.

Mateu Fontanals, J. & Rigau, G. (2002). A minimalist account of conflation processes: Parametric variation at the lexicon-syntax interface. In D. A. Alexiadou (Ed.), *Theoretical approaches to universals* (pp. 211-236). Amsterdam/Philadelphia: John Benjamins.

Morimoto, Y. (2008). Grammar of "manner of motion" verbs in English and Spanish: between lexicón and syntax. In N. Delbecque & B. Cornillie (eds.), *Trends in linguistics, studies and monographs: On interpreting construction schemas: From action and motion to transitivity and causality* (pp. 287-305). Berlin: Mouton de Gruyter.

Narasimhan, B. (2003). Motion events and the lexicon: a case study of Hindi. *Lingua*, 113-2, 123–160.

Pedersen, J. (2009a). The construction of macro-events. A typological perspective. In C. Butler & J. M. Arista (eds.), *Deconstructing constructions* (pp. 25-62). Amsterdam: John Benjamins.

Pedersen, J. (2009b). Lexical and constructional organization of argument structure. A contrastive analysis. In J. Zlatev, M. Andrén, M. Johansson Falck & C. Lundmark (eds.), *Studies in language and cognition* (pp. 230-245). Cambridge: Cambridge Scholars Publishing.

Pedersen, J. (2013). The *way*-construction and cross-linguistic variation in syntax. Implications for typological theory. In C. Paradis, J. Hudson & U. Magnusson (eds.), *The construal of spatial meaning, windows into conceptual space* (pp. 236-262). Oxford: Oxford University Press.

Pedersen, J. (2014). Variable type framing in Spanish constructions of directed motion. In H. C. Boas & F. G. García (eds.), *Romance perspectives on construction grammar*. Book series: Constructional approaches to language (pp. 269-304). Amsterdam: John Benjamins.

Pedersen, J. (submitted).

Pinker, S. (1989). *Learnability and cognition: The acquisition of argument structure*. Cambridge, MA: MIT Press.

Simone, R. (1996). Esistono verbi sintagmatici in italiano?, Cuadernos de Filología Italiana, 3, 47-61. Servicio de publicaciones UCM.

Slobin, D. I. (1996a). From 'thought and language' to 'thinking for speaking'. In J. J. Gumperz & S. C. Levinson (eds.), *Rethinking linguistic relativity* (pp. 195-217). Cambridge: Cambridge University Press.

Slobin, D. I. (1996b). Two ways to travel: Verbs of motion in English and Spanish. In M. Shibatani & S. A. Thompson (eds.), *Grammatical constructions: Their form and meaning* (pp. 195-219). Oxford: Oxford University Press.

Slobin, D. I. (1997). Mind, code, and text. In J. Bybee, J. Haiman & S. A. Thompson (eds.), *Essays on language function and language type: Dedicated to T. Givón* (pp. 437-467). Amsterdam: John Benjamins.

Slobin, D. I. (1998). *Coding of motion events in narrative texts*. Departments of Psychology and Linguistics. University of California at Berkeley.

Slobin, D. I. (2000). Verbalized events: A dynamic approach to linguistic relativity and determinism. In S. Niemeier & R. Dirven (eds.), *Evidence for linguistic relativity* (pp. 107-138). Berlin: Mouton de Gruyter.

Slobin, D. I. (2004). The many ways to search for a frog. In S. Strömqvist & L. Verhoeven (eds.), *Relating events in narrative. Typological and contextual perspectives* (pp. 219-257). Hillsdale, NJ: Lawrence Erlbaum.

Slobin, D. I. (2006). What makes manner of motion salient? Explorations in linguistic typology, discourse, and cognition. In M. Hickmann & S. Robert (eds.), *Space in languages: Linguistic systems and cognitive categories* (pp. 59–81). Amsterdam & Philadelphia: John Benjamins.

Slobin, D. I. (2008). Relations between paths of motion and paths of vision: A crosslinguistic and developmental exploration. In V. C. Mueller-Gathercole (ed.), *Routes to language: Studies in honor of Melissa Bowerman* (pp. 197-221). Manwah, NJ: Lawrence Erlbaum Associates.

Slobin, D. I. & N. Hoiting. (1994). Reference to movement in spoken and signed languages: typological considerations. In S. Gahl, A. Dolbey & C. Johnson (eds.), *Proceedings of the Twentieth Annual Meeting of the Berkeley Linguistic Society* (pp. 487–505). Berkeley: Berkeley Linguistics Society.

Snyder, W. (2001). On the nature of syntactic variation: Evidence from complex predicates and complex word-formation. *Language* 77(2), 324-342.

Son, M. (2007). Directionality and resultativity: The cross-linguistic correlation revisited. *Nordlyd: Tromsø Working Papers in Linguistics* 34:2, 126-164. University of Tromsø, Tromsø, Norway,. http://www.ub.uit.no/munin/nordlyd/.

Stefanowitsch, A. & S. Th. Gries. (2003). Collostructions: Investigating the interaction between words and constructions. *International Journal of Corpus Linguistics* 8.2: 209-43.

Stefanowitsch, A. & S. Th. Gries. (2005). Covarying collexemes. *Corpus linguistics and linguistic theory* 1(1), 1-43.

Talmy, L. (1985). Lexicalization patterns: Semantic structure in lexical forms. In T. Shopen (ed.), *Language typology and syntactic description (vol. 3): Grammatical categories and the lexicon* (pp. 57-149). Cambridge: Cambridge University Press.

Talmy, L. (1987). *Lexicalization patterns: Typologies and universals*. Berkeley Cognitive Science Report 47. Berkeley: Cognitive Science Program, University of California.

Talmy, L. (1991). Path to realization: a typology of event conflation. In L. A. Sutton, C. Johnson & R. Shields (eds.), *Proceedings of the Seventeenth Annual Berkeley Linguistics Society* (pp. 480-519). Berkeley: Berkeley Linguistics Society.

Talmy, L. (2000). *Toward a cognitive semantics*. Vol.1-2. Cambridge, MA: MIT Press.

Tesnière, L. (1959). *Eléments de syntaxe structurale*. Paris: Klincksieck.

Tomasello, M. (2003). *Constructing a language. A usage-based theory of language acquisition*. Cambridge, MA: Harvard University Press.

Zlatev, J. & Yangklang, P. (2004). A third way to travel: The place of Thai (and other serial verb languages) in motion event typology. In S. Stromqvist & L. Verhoeven (eds.), *Relating events in narrative: Typological and contextual perspectives* (pp. 159-190). New Jersey: Lawrence Erl-baum.

Appendix: Complete list of verb ranking

Rank	Verbs	LCC	All uses	Telic usage	Telicity ratio (%)	FET-value-p	Log10-trans
1	*regresar* 'to come back'	P	2780	1251	45	→0	→infinite
2	*acudir* 'to go to a specific place'	P	1171	395	33.73	→0	→infinite

3	*viajar* ‘to travel’	P-G	1832	512	27.95	→0	→infinite
4	*trasladar*(*se*) ‘to move from one place to another’	P	1341	335	24.98	→0	→infinite
5	*entrar* (*a*/*en*) ‘to enter’	P	6651	1512	22.73	→0	→infinite
6	*subir* ‘to ascend, to go up’	P	3209	614	19.13	→0	→infinite
7	*llegar* ‘to arrive’	P	19639	3439	17.51	→0	→infinite
8	*acercar*(*se*) ‘to move closer to’	P	4229	721	17.05	→0	→infinite
9	*ir*(*se*) ‘to go, to go away’	P	56430	4936	8.75	→0	→infinite
10	*volver* ‘to come back, to change direction’	P	12984	1125	8.66	→0	→infinite
11	*salir* ‘to exit’	P	12402	920	7.42	→0	→infinite
12	*venir* ‘to come’	P	12290	658	5.35	→0	→infinite
13	*dirigir*(*se*) ‘to head to’	P	4850	369	7.61	3.83e-252	251.42
14	*emigrar* ‘to emigrate’	P-G	350	141	40.29	5.53e-207	206.26
15	*arribar* ‘(of a ship) to reach port, to arrive’	P	222	107	48.20	2.56e-168	167.59
16	*marchar*(*se*) ‘to go, to go away, to march’	P	1149	169	14.71	2.28e-164	163.64
17	*retornar* ‘to return, to go back’	P	450	126	28	2.89e-161	160.54
18	*aproximar*(*se*) ‘to move closer to’	P	491	124	25.25	2.03e-152	151.69
19	*caer*(*se*) ‘to fall down’	P	5675	253	4.46	1.74e-119	118.76
20	*bajar* ‘to go down’	P	2589	142	5.48	3.46e-79	78.46
21	*mudar*(*se*) ‘to go from one place to another’	P	260	61	23.46	2.43e-75	74.62
22	*sentar*(*se*) ‘to sit down’	P-M	5898	185	3.14	4.79e-64	63.32
23	*correr* ‘to run’	M	3912	150	3.83	4.57e-63	62.34
24	*huir* ‘to flee’	P-M	1129	88	7.79	2.89e-62	61.54
25	*retirar*(*se*) ‘to retreat’	P	1898	108	5.69	3.23e-62	61.49
26	*arrimar*(*se*) ‘to move closer to’	P	151	45	29.80	4.37e-60	59.36
27	*acceder* ‘to gain access into’	P	744	63	8.47	3.00e-47	46.52

28	*pasar* 'to pass, to go through, over, along, beyond'	P	21593	306	1.42	3.61e-32	31.44
29	*saltar* 'to jump'	M	1233	58	4.70	6.62e-30	29.18
30	*penetrar* 'to enter'	P	771	43	5.58	1.85e-25	24.73
31	*volar* 'to move through the air, to fly'	M-G	995	46	4.62	9.30e-24	23.03
32	*lanzar*(*se*) 'to throw oneself, to pounce on something/ somebody'	M	2548	66	2.59	1.17e-19	18.93
33	*ascender* 'to ascend'	P	760	34	4.47	1.48e-17	16.83
34	*tirar*(*se*) 'to throw oneself '	M	2017	62	3.07	7.51e-16	15.12
35	*arrojar*(*se*)	M	824	33	4.00	1.04e-15	14.98
36	*precipitar*(*se*) 'to fall down from a high place, to run, to hurry to'	P-M	323	21	6.50	1.57e-14	13.80
37	*escapar*(*se*) 'to escape'	P-M	1698	41	2.41	6.93e-12	11.16
38	*descender* 'to go down'	P	987	27	2.74	1.82e-9	8.74
39	*afluir* 'to flow in/into/to/toward'	P-M	11	4	36.36	6.39e-7	6.19
40	*encaramar*(*se*) 'to move up to the top of'	P	107	7	6.54	8.77e-6	5.06
41	*abalanzar*(*se*) 'to rush toward'	P-M	72	6	8.33	9.65e-6	5.02
42	*trepar* 'to climb'	P-M	271	10	3.69	1.85e-5	4.73
43	*larger*(*se*) 'to leave'	P	205	8	3.90	8.48e-5	4.07
44	*acostar*(*se*) 'to lie down'	P-M	704	15	2.13	1.13e-4	3.95
45	*partir* 'to leave'	P	5509	58	1.05	7.51e-4	3.12
46	*echar*(*se*) 'to lie down, to move towards'	P-M	2788	34	1.22	8.67e-4	3.06
47	*rodar* 'to roll'	M	38	3	7.89	2.13e-3	2.67
48	*refluir* 'to flow (back)'	P-M	3	1	33.33	0.02	1.70
49	*cruzar* 'to cross'	P	1984	20	1.008	0.05	1.30
50	*fluir* 'to flow'	M	502	7	1.39	0.05	1.26
51	*surtir* 'to gush/spurt out'	P-M	63	2	3.17	0.07	1.17
52	*recostar*(*se*) 'to lean or to lie down'	P-M	251	4	1.59	0.09	1.05

53	*retroceder* ‘to go back, to back down’	P	372	5	1.34	0.11	0.97
54	*caminar* ‘to walk’	M	2347	21	0.89	0.12	0.94
55	*acurrucar*(*se*) ‘to curl up’	M	19	1	5.26	0.12	0.92
56	*confluir* ’to merge (flows, streams)’	P-M	89	2	2.25	0.12	0.92
57	*encumbrar* ’to reach the top of ’	P	23	1	4.35	0.14	0.84
58	*tender*(*se*) ‘to stretch, to lie down’	M	1387	13	0.93	0.15	0.84
59	*navegar* ‘to navigate’	M	340	4	1.18	0.20	0.71
60	*embarcar*(*se*) ‘to go on board’	P-G	257	3	1.17	0.25	0.61
61	*revolcar*(*se*) ’to wallow’	M	50	1	2	0.29	0.54
62	*exiliar*(*se*) ‘to exile’	P-G	284	3	1.06	0.30	0.53
63	*atracar* ‘(of a ship) to reach port’	P	53	1	1.89	0.30	0.52
64	*desviar*(*se*) ‘to divert’	P	423	4	0.95	0.32	0.50
65	*desertar* ‘to desert’	P	64	1	1.56	0.35	0.45
66	*virar* ‘(of a ship) to swerve’	P	67	1	1.49	0.36	0.44
67	*deslizar*(*se*) ‘to slide’	M	462	4	0.87	0.37	0.43
68	*brincar* ‘to jump’	M	96	1	1.04	0.48	0.32
69	*remontar* ‘to go up’	P	392	3	0.77	0.49	0.31
70	*esparcir*(*se*) ‘to move in different directions’	P	132	1	0.76	0.59	0.23
71	*desplomar*(*se*) ‘to collapse’	P	137	1	0.73	0.60	0.22
72	*adentrar*(*se*) ‘to go into the interior part of’	P	146	1	0.68	0.63	0.20
73	*inclinar*(*se*) ‘to incline’	M	883	5	0.57	0.70	0.15
74	*pasear* ‘to walk for pleasure’	M	764	4	0.52	0.75	0.12
75	*transitar* ‘to go along a place or way’	G	231	1	0.43	0.79	0.10
76	*elevar*(*se*) ‘to move upwards’	P	1532	8	0.52	0.80	0.10
77	*apresurar*(*se*) ‘to hurry up’	M	274	1	0.36	0.84	0.08

78	*resbalar*(*se*) ‘to slide’	M	285	1	0.35	0.85	0.07
79	*montar*(*se*) ‘get on/onto an animal or into a vehicle, to ride (on horseback)’	M	1353	6	0.44	0.89	0.05
80	*adelantar*(*se*) ‘to move forwards’	P	779	3	0.39	0.89	0.05
81	*sumergir*(*se*) ‘to dive, submerge’	P-M	364	1	0.27	0.91	0.04
82	*posar*(*se*) ‘to alight, land’	P-M	390	1	0.26	0.93	0.03
83	*oscillar* ‘to oscillate, to swing’	M	466	1	0.21	0.96	0.02
84	*pisar* ‘to tread’	M-F	526	1	0.19	0.97	0.01
85	*flotar* ‘to float or to move smoothly’	M	883	1	0.11	0.997	0.001
86	*andar* ‘to walk’	M	3330	10	0.30	0.999	0.001
87	*apartar*(*se*) ‘to move away from’	P	1023	1	0.10	0.999	0.0005
88	*extender*(*se*) ‘to stretch’,	M	2917	7	0.24	0.99966	0.0002
89	*girar* ‘to rotate/spin, to turn, change direction’	M	1233	1	0.08	0.99975	0.0001
90	*mover*(*se*) ‘to move oneself ’	-	2986	7	0.23	0.99975	0.0001
91	*arrastar*(*se*) ‘to drag oneself’	M	1265	1	0.08	0.99980	8.8e-05
92	*avanzar* ‘to move forwards’	P	2265	2	0.09	0.999996	1.7e-06
93	*alejar*(*se*) ‘to move far away from’	P	1774	1	0.06	1	0
94	*conducir* ‘to drive’	M	1899	1	0.05	1	0
95	*alcanzar* ‘to reach’	P	5342	10	0.19	1	0
96	*seguir* ‘to follow’	P	15308	14	0.09	1	0
97	*levantar*(*se*) ‘to stand up, to raise’	P-M	3896	3	0.08	1	0
98	*cocear* ‘(of a horse, donkey) to kick’	M-F	1	0	0	1	0
99	*bandear*(*se*) ’to swing’	M	3	0	0	1	0
100	*desbarrar* ’to slip’	M	3	0	0	1	0
101	*despeñar*(*se*) ‘to fall down from a rock’	P-G	3	0	0	1	0
102	*contonear*(*se*) ‘to swagger’	M	4	0	0	1	0

103	*desembarcar* ‘to disembark’	P-G	4	0	0	1	0
104	*jinetear* ‘to ride a horse	M	4	0	0	1	0
105	*caracolear* ‘to turn around’	M	5	0	0	1	0
106	*vaguear* ’to roam/wander’	M	5	0	0	1	0
107	*expatriar* ‘to exile’	P-G	6	0	0	1	0
108	*callejear* ‘to walk around the streets’	M-G	7	0	0	1	0
109	*hormiguear* ’to swarm’	M	7	0	0	1	0
110	*tremolar* ’to flutter’	M	7	0	0	1	0
111	*culebrear* ‘to zigzag’	M	8	0	0	1	0
112	*ambular* ‘to wander about’	M	9	0	0	1	0
113	*bogar* ’to row/sail’	M	9	0	0	1	0
114	*campanear* ‘to swing’	M	9	0	0	1	0
115	*cimbrear*(*se*) ’to sway’	M	9	0	0	1	0
116	*piafar* ’to paw the ground, to stamp’	M	9	0	0	1	0
117	*pirar*(*se*) ‘to go away (informal)’	P	9	0	0	1	0
118	*pavonear*(*se*) ‘to strut about’	M	10	0	0	1	0
119	*agazapar*(*se*) ‘to crouch	M	12	0	0	1	0
120	*fondear* ‘to move at the bottom of the sea’	G	12	0	0	1	0
121	*renquear* ‘to limp’	M	12	0	0	1	0
122	*repatriar* ‘to repatriate’	P-G	13	0	0	1	0
123	*boxear* ’to box’	M	15	0	0	1	0
124	*bracear* ’to brace/wrestle’	M	15	0	0	1	0
125	*colear* ‘(of an animal) to move its tail, to wag’	F	16	0	0	1	0
126	*encabritar*(*se*) ‘to rear up’	M	16	0	0	1	0
127	*taconear* ‘to tap shoes with heels’	M	16	0	0	1	0

128	*traquetear* 'to move repeatedly'	M	16	0	0	1	0
129	*vadear* 'to wade, to ford a river'	P-M	18	0	0	1	0
130	*vagabundear* 'to wander'	M	19	0	0	1	0
131	*columpiar*(*se*)'to swing'	M	20	0	0	1	0
132	*patrullar* 'to patrol'	M-C	20	0	0	1	0
133	*pilotar* 'to steer/drive/fly'	M	20	0	0	1	0
134	*arbolar* 'to rear (horse)/going steep (aircraft)'	M	21	0	0	1	0
135	*fugar*(*se*) 'to flee, to run away'	P-M	21	0	0	1	0
136	*cojear* 'to limp'	M	22	0	0	1	0
137	*escabullir*(*se*) 'to slip away'	P-M	22	0	0	1	0
138	*pedalear* 'to pedal'	M	24	0	0	1	0
139	*recular* 'to back/recoil/walk backwards/back'	P-M	24	0	0	1	0
140	*patinar* 'to skate'	M	25	0	0	1	0
141	*desandar* 'to walk back to a previous path'	P-M	28	0	0	1	0
142	*ladear*(*se*) 'to slant, to lean, to move away from, to move on the hillside'	M-G	28	0	0	1	0
143	*bambolear*(*se*) ' to swing/falter'	M	29	0	0	1	0
144	*trastabillar* 'to stumble/stagger'	M	31	0	0	1	0
145	*cejar* 'to back'	P-M	33	0	0	1	0
146	*bailotear*	M	34	0	0	1	0
147	*codear* 'to move your elbow, to nudge'	M-F	34	0	0	1	0
148	*maniobrar* 'to maneuver'	M	34	0	0	1	0
149	*pulular* 'to swarm'	M	35	0	0	1	0
150	*regatear* 'to dribble'	M	35	0	0	1	0
151	*serpentear* 'to slither, to meander'	M	35	0	0	1	0
152	*zambullir*(*se*) 'to go down into water in a violent way'	M-G-P	36	0	0	1	0

153	*chapotear* 'to move noisily in water/mud'	M-G	38	0	0	1	0
154	*divagar* 'to wander'	M	38	0	0	1	0
155	*retozar* 'to frolic'	M	38	0	0	1	0
156	*rezumar* 'to seep/ooze'	M	38	0	0	1	0
157	*aligerar* 'to hurry up'	M	39	0	0	1	0
158	*campear* 'to graze'	M-G	39	0	0	1	0
159	*gatear* 'to crawl, to climb like a cat'	M	39	0	0	1	0
160	*rotar* 'to rotate'	M	39	0	0	1	0
161	*colisionar* 'to crash'	M-CR	43	0	0	1	0
162	*zarandear*(*se*) 'bustle about'	M	44	0	0	1	0
163	*bullir* 'to boil, to stir'	M	45	0	0	1	0
164	*bucear* 'to dive, swim down under water'	M-G	49	0	0	1	0
165	*embestir* 'to plunge'	M	49	0	0	1	0
166	*costear* 'to sail along the coast , to move along the edge of'	G	51	0	0	1	0
167	*patalear* 'to stamp one's feet to show anger'	M-F	51	0	0	1	0
168	*reptar* 'to crawl or to move like a reptile'	M	51	0	0	1	0
169	*aletear* 'to flap, to flutter to wriggle'	M-F	52	0	0	1	0
170	*ondular* 'to wave/undulate'	M	52	0	0	1	0
171	*remar* 'to row, to paddle'	M	53	0	0	1	0
172	*cabecear* 'to move or to shake one's head'	M-F	54	0	0	1	0
173	*cerne*(*i*)*rse* 'to swing the hips (walking)'	M	55	0	0	1	0
174	*merodear* 'to walk around, to prowl'	M-C	56	0	0	1	0
175	*ondear* 'to undulate, to sway'	M	57	0	0	1	0
176	*esquiar* 'to ski'	M	58	0	0	1	0
177	*reclinar*(*se*) 'to lean'	M	58	0	0	1	0

178	*menear*(*se*) ‘to move’	M	62	0	0	1	0
179	*empinar*(*se*) ‘to stand up’	P-M	63	0	0	1	0
180	*blandir*(*se*) ’to swing/stagger’	M	64	0	0	1	0
181	*enroscar*(*se*) ‘to coil’	M	65	0	0	1	0
182	*trotar* ‘(of a person) to trot, to ride a trotting horse’	M	66	0	0	1	0
183	*fluctuar* ’to fluctuate’	M	69	0	0	1	0
184	*tambalear* ‘to stagger’	M	69	0	0	1	0
185	*encorvar*(*se*) ‘to bend, to curve’	M	71	0	0	1	0
186	*escalar* ‘to scale, to climb’	M-P	71	0	0	1	0
187	*pisotear* ‘to tread repeatedly and violently over something’	M-F	72	0	0	1	0
188	*naufragar* ‘(of a ship, people in a ship) to sink’	P-M	75	0	0	1	0
189	*torear* ’to fight bulls’	M	75	0	0	1	0
190	*tiritar* ‘to shiver, to tremble’	M	76	0	0	1	0
191	*arquear*(*se*) ‘to bend oneself’	M	77	0	0	1	0
192	*titubear* ’to falter’	M	77	0	0	1	0
193	*curvar*(*se*) ‘to curve, bend’	M	78	0	0	1	0
194	*zarpar* ‘(of a ship) to set off’,	M	78	0	0	1	0
195	*corretear* ‘to run about’	M	79	0	0	1	0
196	*danzar* ‘to dance’	M	80	0	0	1	0
197	*errar* ‘to wander about’	M	81	0	0	1	0
198	*atajar* ‘taking a short cut’	G	89	0	0	1	0
199	*rastrear* ‘to fly at ground level, to track’	M-G/P	95	0	0	1	0
200	*revolotear* ‘to fly around, to flutter’	M-G	97	0	0	1	0
201	*distanciar*(*se*)‘to move away from’	P	99	0	0	1	0
202	*cabalgar* ‘to ride a horse’	M	101	0	0	1	0

203	*rebotar* 'to bounce'	M	119	0	0	1	0
204	*enderezar*(*se*) 'to become straight'	M	120	0	0	1	0
205	*galopar* 'to gallop, to ride a galloping horse'	M	123	0	0	1	0
206	*patear* 'to go on foot around a place, to stamp one's feet showing one is angry'	M-F	125	0	0	1	0
207	*mecer*(*se*) 'to swing, rock'	M	126	0	0	1	0
208	*deambular* 'to walk around'	M	127	0	0	1	0
209	*enrollar*(*se*) 'to roll'	M	129	0	0	1	0
210	*balancear*(*se*) 'to swing'	M	152	0	0	1	0
211	*botar* 'to bounce, rebound'	M	156	0	0	1	0
212	*aterrizar* 'to land'	P-G	160	0	0	1	0
213	*arrodillar*(*se*) 'to kneel down'	M	167	0	0	1	0
214	*estrellar*(*se*) 'to crash'	M	170	0	0	1	0
215	*agachar*(*se*) 'to crouch'	M	176	0	0	1	0
216	*vagar* 'to wander'	M	186	0	0	1	0
217	*rondar* 'to be on patrol, to prowl about'	M-C	188	0	0	1	0
218	*desfilar* 'to parade, to walk in file'	M	191	0	0	1	0
219	*despegar* 'to take off'	P-G	194	0	0	1	0
220	*torcer*(*se*) 'to turn, to change direction, to bend'	P	202	0	0	1	0
221	*derrumbar*(*se*) 'to fall down'	P	240	0	0	1	0
222	*dispersar*(*se*) 'to disperse'	P	241	0	0	1	0
223	*refugiar*(*se*) 'to flee'	P-G	242	0	0	1	0
224	*vibrar* 'to vibrate'	M	246	0	0	1	0
225	*espantar*(*se*) 'to run away as a result of being frightened'	M-C	261	0	0	1	0
226	*profundizar* 'to get into'	P	269	0	0	1	0
227	*voltear* 'to turn/roll over'	M	274	0	0	1	0

228	*erguir*(*se*) 'to straighten, stand up'	P-M	294	0	0	1	0
229	*estremecer*(*se*) 'to tremble, shiver'	M	301	0	0	1	0
230	*nadar* 'to swim'	M-G	311	0	0	1	0
231	*tropezar* 'to trip'	M	339	0	0	1	0
232	*estirar*(*se*) 'to stretch out'	M	390	0	0	1	0
233	*planear* '(of a plane, a bird) to glide'	M-G	393	0	0	1	0
234	*chocar* 'to crash'	M-CR	458	0	0	1	0
235	*acelerar* 'to speed up, to accelerate'	M	473	0	0	1	0
236	*asentar*(*se*) 'to sit down'	P-M	496	0	0	1	0
237	*doblar* 'to turn, to change direction'	P	525	0	0	1	0
238	*temblar* 'to shiver, to tremble'	M	631	0	0	1	0
239	*agitar*(*se*) 'to shake, to move about'	M	633	0	0	1	0
240	*sacudir*(*se*) 'to shake oneself '	M	638	0	0	1	0
241	*derivar* 'to drift'	M	890	0	0	1	0
242	*circular* 'go in a circuit'	G	913	0	0	1	0
243	*encerrar*(*se*) 'to put oneself into an enclosed place'	P	920	0	0	1	0
244	*hundir*(*se*) 'to collapse, to sink'	P	974	0	0	1	0
245	*alzar*(*se*) 'to rise'	P	990	0	0	1	0
246	*manejar* 'to handle/drive'	M	1217	0	0	1	0
247	*bailar* 'to dance'	M	1283	0	0	1	0
248	*atravesar*(*se*) 'to cross'	P	1324	0	0	1	0
249	*rodear* 'to go round'	M	1858	0	0	1	0
	Total			19623			